

# Formaldehyde and RACT Workgroup Updates

## Background

**RACT:** Implementation of Reasonably Available Control Technology (RACT) for sources of volatile organic compounds (VOCs) and oxides of nitrogen (NO<sub>x</sub>) may be required in the event of a bump-up to moderate nonattainment. Various source categories and the effectiveness of RACT controls will need to be evaluated and quantified.

**Formaldehyde:** Primary formaldehyde is a VOC that is a powerful ozone precursor due to its ability to generate new, unrecycled radicals that fuel  $\text{NO} \rightarrow \text{NO}_2 \rightarrow \text{O}_3$ . The focus of this workgroup surrounding formaldehyde is to evaluate and improve existing inventories; determine the primary formaldehyde emissions influence on southeast Michigan ozone; and identify control strategies and their associated emission reductions, if appropriate.

## Current Work

### Formaldehyde Updates:

We are continuing to collect data from stack testing files on the ratio of formaldehyde to carbon monoxide found in stack effluent. We plan to continue this work while also seeing if other regional states have similar data we can use to find ratios for various processes.

Work is continuing to understand basic concepts and relationships of siloxanes, combustion efficiency, maintenance, etc. and how these items lead to formaldehyde formation during the combustion of landfill gas, or any other bio or natural gas, as well as at what cost these maintenance activities and controls can take.

### RACT Coating Subgroup:

Work from this subgroup has concluded. Draft rules (R610a, R621a, revisions to R632, and R633) were distributed for review late August and comments requested by September 10<sup>th</sup>. In the coming months as we work through other draft RACT rules if any new information comes up regarding common thread questions brought up in this subgroup, regarding applicability thresholds or potential options for providing “alternates” to these rules, we will go back and update the coating rules as applicable. Otherwise, for now we are setting them aside to move our attention on to other draft rule work.

### Current RACT Category Updates:

Updates on the various efforts for addressing RACT through negative declarations and draft rulemaking are outlined in the tables below. Additional work is being done to address some CTG categories where we have current rules but no new CTG has been released since the development of that rule.

Assessment of alignment with the CTG and geographic extent are being completed for those categories.

Negative Declaration Investigations	
CTG Category	Findings
Aerospace	Found potential sources – verifying applicability
Flat wood paneling coatings (R620)	One source that won't be affected. Sufficient?
Air oxidation processes in SOCM	Confirmed no applicable sources in NAA.
Pneumatic rubber tires	Confirmed no applicable sources in NAA.
Surface coating: Shipbuilding and ship repair facilities	Two sources to examine closer and in conjunction with other CTG
Fiberglass boat manufacturing	Found potential sources – exploring sources.
Nitric and adipic acid manufacturing plants	Confirmed no applicable sources in NAA.
Large appliance coatings	Confirmed no applicable sources in NAA.
Metal furniture coatings	Found potential sources – added into R610a.
Cans/Coils/Fabrics coatings	Sources found but no new CTG – need to confirm current rule (R610) is in line with CTG.
Insulation of magnet wire	Sources found but no new CTG – need to confirm current rule (R610) is in line with CTG.
Reactor processes and distillation operations in SOCM	Found potential sources - looking into new rule development
Large petroleum dry cleaners	Confirmed no applicable sources in NAA.
Glass manufacturing – NOx	Confirmed no applicable sources in NAA.

Draft Rule Work	
CTG Category	Status
Coating Rules (R610a, R621a, R632-revisions, R633)	Subgroup has concluded work. Members reviewed and provided feedback on final draft rule. Setting aside for now, will revisit if new information arises.
Wood Furniture Manufacturing	Internal work to address sources and CTG done, beginning stages of drafting rule language.
Fiberglass Boat Manufacturing	Internal work on addressing sources, currently determining applicability of sources to CTG to see if rulemaking is necessary.
Miscellaneous Industrial Adhesives	Internal work to address sources and CTG done, beginning stages of drafting rule language.
Industrial Cleaning Solvents	Currently drafting rule language
Offset Lithographic Printing	Currently drafting rule language
Rule 624a – Flexible Package Printing	Currently drafting rule language
Various existing rules (mostly petroleum related – Rules 606, 607, 609, 627, etc.)	Need to be edited to address 2015 Ozone nonattainment areas.
Part 7 rules	May be necessary to parallel some Part 6 rules, exploring this as we work through Part 6 rules.
Oil and Gas CTG	Currently on hold, awaiting more information on EPA's revision to 40 CFR Part 60, Subpart OOOOa.

#### LADCO Workgroup Updates:

- NOx RACT Workgroup – We're looking to comment on Ramboll's third task (NOx controls), which evaluates costs, in the coming weeks.
- Ozone Technical Workgroup – Discussions have revolved around prioritizing LADCO's modeling projects for the next few months. Additional work is being done by LADCO to compile R5 studies and data into a comprehensive reference document.

#### Michigan Ozone Update:

This summer has been fairly good for ozone in southeast Michigan (so far), with only one monitor having a 4<sup>th</sup> high value over the 70 ppb standard. Fortunately, these values haven't elevated the 3-year design values of the monitors over the standard at this point. It's important to note there are still a few weeks left in the ozone season, which does not officially end until October 31, so we will keep our eye on these monitor numbers until then. West Michigan, however, has experienced several days impacting the nonattainment area 4<sup>th</sup> high values for all monitors. Those high concentrations have led to the monitors exceeding their 3-year design values, and thus continuing to be in nonattainment.

#### Non-CTG RACT:

We have a new employee in the SIP Development Unit, Alec Kownacki, primarily a modeler and forecaster, but we plan to utilize him with some SIP related tasks as well. He is beginning to dive into the world of non-CTG RACT and assembling data from our internal resources to start the process of getting a handle on this topic as well.

## Upcoming Meetings:

*A meeting was held September 21, 2021; the next meeting has not been scheduled yet.*

## Contacts:

Marissa Stegman – [StegmanM1@Michigan.gov](mailto:StegmanM1@Michigan.gov)

Tracey McDonald – [McdonaldT@Michigan.gov](mailto:McdonaldT@Michigan.gov)